In the Claims

1. (Currently Amended) A nucleic acid sequence encoding a polypeptide selected from [[a]] the group consisting of TAF1B, MACS, UVRAG, ELAVL3, TCF6L1, ABCF1, AIM2, CHD2, FLJ11053, KIAA1052, ACVR2 and HT001 having a frameshift mutation, wherein the frameshift mutation is selected from ~~a group comprising the following~~ the group consisting of:
   a. the insertion of one A in the A11 repeats of the genes TAF1B, MACS, HT001, FLJ11053, KIAA1052,
   b. the insertion of two A in the A11 repeats of the genes TAF1B, MACS, HT001, FLJ11053, KIAA1052,
   c. the deletion of one A in the A11 repeats of the genes TAF1B, MACS, HT001, FLJ11053, KIAA1052,
   d. the deletion of two A in the A11 repeats of the genes TAF1B, MACS, HT001, FLJ11053, KIAA1052,
   e. the insertion of one A in the A10 repeats of the genes CHD2, UVRAG, TCF6L1, ABCF1, AIM2,
   f. the insertion of two A in the A10 repeats of the genes CHD2, UVRAG, TCF6L1, ABCF1, AIM2,
   g. the deletion of one A in the A10 repeats of the genes CHD2, UVRAG, TCF6L1, ABCF1, AIM2,
   h. the deletion of two A in the A10 repeats of the genes CHD2, UVRAG, TCF6L1, ABCF1, AIM2,
   i. the insertion of one A in the A8 repeat of the gene ACVR2,
   j. the insertion of two A in the A8 repeat of the gene ACVR2,
   k. the deletion of one A in the A8 repeat of the gene ACVR2,
   l. the deletion of two A in the A8 repeat of the gene ACVR2,
   m. the insertion of one G in the G9 repeat of the gene ELAVL3,
   n. the insertion of two G in the G9 repeat of the gene ELAVL3,
   o. the deletion of one G in the G9 repeat of the gene ELAVL3, and
   p. the deletion of two G in the G9 repeat of the gene ELAVL3.

2. (Currently Amended) The nucleic acid according to claim 1, wherein the nucleic acid is for use in detection of disorders associated with frameshift mutations in coding microsatellite regions ~~and/~~or for use in preparation of pharmaceutical compositions for treatment of disorders associated with frameshift mutations in coding microsatellite regions.

3. (Currently Amended) A frameshift polypeptide selected from ~~a group comprising~~ the group consisting of:
   a. a frameshift polypeptide derived from a frameshift mutation as described in claim 1 in a coding microsatellite region of a gene selected from the group consisting of CHD2, UVRAG, ELAVL3, TCF6L1, ABCF1, AIM2, TAF1B, MACS and HT001;
   b. a polypeptide described by an amino acid sequence given in Figure 2;
   c. a polypeptide encoded by a nucleic acid sequence according to claim 1; and
   d. a fragment or a portion of the polypeptides of a) to c) containing at least one amino acid not present in the wild-type protein

4. (Currently Amended) [[A]] The frameshift polypeptide according to claim 3, wherein the frameshif polypeptide is for use in detection of disorders associated with frameshift mutations in coding microsatellite regions ~~and/~~or for use in preparation of pharmaceutical compositions for treatment of disorders associated with frameshift mutations in coding microsatellite regions.

5. (Original) A method for treatment of disorders associated with frameshift mutations in coding microsatellites comprising administering one or more frameshift polypeptides according to claim 3 or nucleic acid sequences according to claim 1 in a pharmaceutical acceptable form to an individual.

6. (Original) The method of claim 5 additionally comprising administering one or more further frameshift polypeptides arising from frameshift mutations in coding microsatellite regions.

7. (Currently Amended) The ~~methods~~ method according to ~~the claims 5 or 6~~ claim 5, wherein the disorder is a degenerative disorder

8. (Currently Amended) The ~~methods~~ method according to ~~the claims 5 or 6~~ claim 5, wherein the disorder is a neurodegenerative disorder, vascular disease, cancer or precursory stages of cancer.

9. (Currently Amended) The ~~methods~~ method according to ~~any one of the claims 5-8~~ claim 5, wherein the treatment is immuno-therapeutic treatment of disorders.

10. (Currently Amended) The ~~methods~~ method according to ~~any one of the claims 5-8~~ claim 5, wherein the treatment is preventive vaccination against disorders.

11. (Currently Amended) A pharmaceutical composition ~~for use in the methods according to any one of the claims 5-10~~ comprising a nucleic acid according to claim 1 ~~and/~~or a polypeptide according to claim 3 in physiological acceptable form.

12. (Original) A method for detection of a disorder associated with frameshift mutations in coding microsatellite regions comprising detecting the presence or absence of one or more nucleic acids according to claim 1 and/or frameshift polypeptides according to claim 3 in a biological sample.

13. (Original) A method for detection of a disorder associated with frameshift mutations in coding microsatellite regions comprising detecting the presence or absence of antibodies directed against one or more frameshift polypeptides according to claim 3 in a biological sample.

14. (Original) A method for detection of a disorder associated with frameshift mutations in coding microsatellite regions comprising detecting the presence or absence of cells specifically directed against one or more frameshift polypeptides according to claim 3 in a biological sample.

15. (Currently Amended) The ~~methods~~ method according to ~~any one of the claims 12-14~~ claim 12, wherein the disorder is a degenerative disorder

16. (Currently Amended) The ~~methods~~ method according to ~~any one of the claims 12-14~~ claim 12, wherein the disorder is a neurodegenerative disorder, vascular disease, cancer or precursory stages of cancer.

17. (Currently Amended) A diagnostic or research kit ~~for performing the methods according to any one of the claims 12-16~~ comprising one or more nucleic acids according to claim 1 ~~and/~~or one or more polypeptides according to claim 3.

18. (Original) A method for treatment of disorders associated with peptides arising from frameshift mutations in coding microsatellite regions in individuals, comprising selecting a set of at least 5 different frameshift peptides according to the following requirements:

    a. at least 3 of the frameshift peptides occur with a frequency of more than 30% in tissues affected by said disorders;

    b. the frameshift peptides comprise each at least one novel amino acid residue compared to the wild-type amino acid sequence; and

    c. the frameshift peptides comprise members of at least 3 different biochemical pathways;

    and administering said frameshift peptides to an individual either as peptide or in form of a nucleic acid to be expressed in situ in a pharmaceutical acceptable form that enables induction of an immune response in the individual against the peptides.

19. (Original) The method of claim 18, wherein at least one coding microsatellite sequence is represented by peptides originating from at least two different reading frames of said single microsatellite region.

20. (Currently Amended) The method according to ~~any one of the claims 18-19~~ claim 18, wherein at least one frameshift peptide is derived from a frameshift mutation in the $(A)_{10}$ tract of the TGFβRII gene.

21. (Currently Amended) The method according to ~~any one of the claims 18-20~~ claim 18, wherein at least one frameshift peptide is derived from a frameshift mutation in the $(G)_8$ tract of the BAX gene.

22. (Currently Amended) The method according to ~~any one of the claims 18-21~~ claim 18, comprising at least five frameshift peptides selected from [[a]] the group consisting of frameshift peptides derived from the $(A)_{11}$ tract of the MACS gene, the $(A)_{10}$ tract of the CASP5 gene, the $(A)_9$ tract of the TCF-4 gene, the $(G)_8$ tract of the IGFIIR gene, the $(T)_{10}$ tract of the AC1 gene, the $(A)_9$ or $(A)_{10}$ tract of the SEC63 gene, the $(A)_{11}$ tract of the TAF1B gene, the $(A)_{11}$ tract of the PTHL3 gene, the $(T)_{14}$ tract of the U79260 gene, the $(A)_{10}$ tract of the AIM2 gene, the $(A)_{10}$ tract of the ABCF1 gene.

23. (Currently Amended) [[A]] The method according to claim 18, wherein the set comprises frameshift peptides derived from mutations in the coding regions of the following genes: TGFβRII, U79260, CASP 5, HT001, PTHL3, MACS, TCF4, TAF1B, AC1 and SEC63

24. (Currently Amended) [[A]] The method according to claim 18, wherein the set is selected from [[a]] the group ~~comprising~~ consisting of:

HT001 U79260 MACS
HT001 TAF1B MACS
HT001 TGFB2R MACS
HT001 U79260 TGFB2R
HT001 U79260 TAF1B
HT001 TGFB2R TAF1B
HT001 U79260 TGFB2R MACS
HT001 U79260 TGFB2R AC1
HT001 U79260 TGFB2R TAF1B
HT001 TGFB2R MACS CASP5
HT001 U79260 MACS CASP5
HT001 U79260 MACS AC1
HT001 TGFB2R TAF1B CASP5
HT001 U79260 MACS OGT
U79260 TGFB2R AC1 CASP5
HT001 U79260 TGFB2R MACS AC1
HT001 U79260 TGFB2R TAF1B MACS
HT001 U79260 TGFB2R TAF1B AC1
HT001 U79260 TGFB2R MACS AIM2
HT001 U79260 TGFB2R TAF1B AIM2
U79260 TGFB2R TAF1B AC1 CASP5
HT001 U79260 TGFB2R AC1 CASP5
U79260 TGFB2R MACS AC1 CASP5
HT001 U79260 TAF1B MACS AC1
HT001 U79260 TAF1B MACS CASP5

HT001	U79260	MACS	AC1	OGT
HT001	U79260	MACS	MSH3	OGT
HT001	U79260	TGFB2R	MACS	OGT
HT001	TGFB2R	TAF1B	AC1	CASP5
HT001	U79260	TGFB2R	AC1	AIM2

25. (Currently Amended) The method according to ~~claims 18–24~~ claim 18, wherein the disorder is cancer or its precursory stages.

26. (Original) The method according to claim 25, wherein the cancer is colon cancer.

27. (Currently Amended) The method according to ~~claims 18–26~~ claim 18, which is immuno-therapeutic treatment of disorders.

28. (Currently Amended) The method according to ~~claims 18–27~~ claim 18, which is preventive vaccination against disorders.

29. (Currently Amended) The method according to ~~any one of the claims 18-28~~ claim 18, wherein the nucleic acid administered to the individual is mRNA.

30. (Currently Amended) A pharmaceutical composition comprising a set of frameshift polypeptides ~~as used in the methods of any one of the claims 18-24 for the use in immunotherapy according to claim 27 or 28 of disorders associated with frameshift mutations in coding microsatellite regions~~ according to claim 18.

31. (Original) The pharmaceutical composition of claim 30, which is used for the treatment of cancer.

32. (Currently Amended) A method for ~~the detection of~~ detecting a disorder associated with frameshift mutations in coding microsatellite regions in an individual comprising

    a. ~~detection of~~ detecting the presence or absence and/or of the level of immunological entities specifically directed against one or more frameshift polypeptides originating from frameshift mutations in coding microsatellite regions in a biological sample, and

b. assessing diagnosis of the presence or absence of said disorder and/or prognosis of the disease course of said disorder from the presence or absence and/or the level of said immunological entities.

33. (Original) The method of claim 32, wherein the immunological entity is an antibody or a fragment thereof.

34. (Original) The method of claim 32, wherein the immunological entity is a cell specifically directed against a frameshift polypeptide.

35. (Currently Amended) The method of ~~any one of the claims 32-34~~ claim 32, wherein the disorder is a neuro-degenerative disorder or cancer.

36. (Original) The method of claim 35, wherein the cancer is gastrointestinal cancer.

37. (Currently Amended) The method of ~~any one of the claims 32-36~~ claim 32, wherein immunological entities are specifically directed against at least one frameshift polypeptide derived from a frameshift mutation in the $(A)_{10}$ tract of the TGFβRII gene.

38. (Currently Amended) The method of ~~any one of the claims 32-37~~ claim 32, wherein immunological entities are specifically directed against at least one frameshift polypeptide derived from a frameshift mutation in the $(G)_8$ tract of the BAX gene.

39. (Currently Amended) The method of ~~any one of the claims 32-38~~ claim 32, wherein immunological entities are specifically directed against at least one frameshift polypeptide selected from [[a]] the group consisting of frameshift peptides derived from the $(A)_{11}$ tract of the MACS gene, the $(A)_{10}$ tract of the CASP5 gene, the $(A)_9$ tract of the TCF-4 gene, the $(G)_8$ tract of the IGFIIR gene, the $(T)_{10}$ tract of the AC1 gene, the $(A)_9$ or $(A)_{10}$ tract of the SEC63 gene, the $(A)_{11}$ tract of the TAF1B gene, the $(A)_{11}$ tract of the PTHL3 gene, the $(T)_{14}$ tract of the U79260 gene, the $(A)_{10}$ tract of the AIM2 gene, the $(A)_{10}$ tract of the ABCF1 gene.

40. (Currently Amended) The method of ~~any one of the claim 32-39~~ claim 32, wherein the detection is carried out in vitro.

41. (Currently Amended) The method of ~~any one of the claim 32-39~~ claim 32, wherein the detection is carried as an in situ immuno-cytochemical staining reaction.

42. (Currently Amended) A kit for performing the ~~methods of any one of the claims 32-41~~ method of claim 32, which is a diagnostic kit or a research kit.